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10/587,747	07/28/2006	Arno Lange	293594US0PCT	1197
22850 7590 07/20/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER WEISS, PAMELA HL	
			ART UNIT	PAPER NUMBER
			1797	
			NOTIFICATION DATE	DELIVERY MODE
			07/20/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/587,747	Applicant(s) LANGE ET AL.	
	Examiner PAMELA WEISS	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Regarding claim 1, the phrase "if appropriate" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). The examiner recommends that "if appropriate" be changed to "optionally".

5. Claims 19-20, and 22 provides for the use of a composition, but, since the claims do not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

6. Claims 19-20 and 22 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App.

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1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

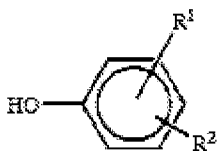
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 5, 7, 9- 11 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Lange et al. (WO 02/26839) citing to reference as published (US 6,875,897).

Regarding Claims 1, 7 and 9-10:

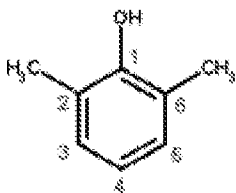
Lange et al. (US 6,875,897) discloses a polyisobutenylphenol and a method of preparing it by alkylating an aromatic hydroxyl compound with substantially monoethylenically unsaturated and substantially homopolymeric polyisobutene in the presence of a Lewis acid alkylation catalyst of BF_3 (Abstract). The aromatic hydroxyl compound used is disclosed by Lange et al. as



where R¹ is CH₃ and R² is CH₃ or OH or H. (meeting the limitation of claim 9 when R² is H)

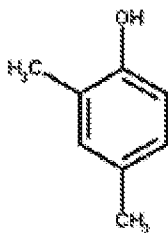
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Lange also discloses xylenol and its isomers may be used (an example of an isomer of xylenol has been provided from Wikipedia for illustrative purposes).



2,6-dimethylphenol

and



2,4-dimethylphenol

(C3 L25-45 thus meeting the limitation for a 2-

alkylhydroxyaromatic compound and the limitation of claim 7 formula I where R¹ is C₁ alkyl group and R² is C₁ alkyl or hydroxyl or hydrogen and the limitation of claim 10 for R² to be a radical other than hydrogen - i.e. an alkyl group in the 6 position).

Lange discloses the process of the compounds made by Mannich reaction (i.e. polyisobutene phenol, aldehyde and ethylene diamine condensed). (C7 L35-45).

Regarding Claim 2:

Lange discloses the limitations set forth above. Lange also discloses the BF₃ may be utilized with a co catalyst of an ether (C3 L7-14) or as a BF₃ complex with phenol (C5 L13-21) (meeting the limitation of claim 2 iii)

Regarding Claim 5:

Lange discloses the limitations set forth above. Lange also discloses the BF_3 and complexes are reacted at from 15 to 40 degrees Celsius (meeting the limitation of at most 40 degrees Celsius)

Regarding Claims 11 and 14:

Lange discloses the limitations set forth above thus creating a composition comprising the 2-alkylpolyisobutnylphenol and/or a Mannich adduct thereof. Lange also discloses the composition is in a fuel composition. (C7 L17-22).

9. Claims 1, 2, 5, 7, 9, 10, 11, 14, 15, and 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Lange et al. (WO 02/26840) citing to reference as published (US 6,914,163) referred to hereafter as Lange '163.

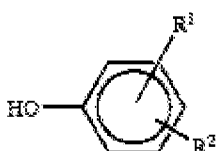
Regarding Claims 1, 2, 3, 5, 7, 9, 10, and 11:

Lange '163 discloses a method of preparing 2-alkylpolyisobutenylphenols and their Mannich adducts and the resulting composition wherein it is produced by alkylating (which would require contact) an aromatic hydroxyl compound with a substantially monoethylenically unsaturated and substantially homopolymeric polyisobutene in the presence of a Lewis acid alkylation catalyst (Abstract). Lange '163 discloses the catalyst is BF_3 and complexes thereof with phenol and ethers. (C5 L36-45 meeting the limitation of claim 2 iii)) Lange '163 discloses the suitable processes for the preparation of the polyisobutneylphenol containing Mannich adducts are known to a person skill in the art. (C6 L29-35) Lange '163 discloses the reaction between the alkyhydroxyaromatic and the BF_3 may occur at temperatures of from 15-40°C (meeting the limitation of claim 5 for at most 40°C). Lange '163 further discloses the order of the

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addition of the reaction components is unimportant; as such, the BF_3 and the alkylhydroxyaromatic may be added at the same time at the same temperature.

Lange '163 discloses the aromatic hydroxyl compound used for the alkylation is a phenol having a $\text{C}_1\text{-C}_8$ alkyl substituent. (C4 L26-45 meeting the limitation of claim 1a), and claim 2ii) Lange discloses the composition having the formula



where R^1 and R^2 are independently hydrogen OH or CH_3 meeting the limitation of claim 7 where R^1 is a C_1 alkyl group and R^2 is H, OH or a C_1 alkyl group and claim 9 where the R^1 is a C_1 alkyl and R^2 is hydrogen. Lange '163 discloses ortho cresol may be used. (C4 L43) meeting the limitation of claim 7 where R^1 is a C_1 alkyl group and R^2 is hydrogen.

Lange '163 also discloses the use of xlenol isomers (which the examiner notes would include a C_1 alkyl group at both the ortho and para positions) (C4 L40-45 meeting the limitation of claim 10)

Lange '163 discloses the BF_3 may be complexed with an ether such as (i- C_3H_7)₂O or t- $\text{C}_4\text{H}_9\text{-O-CH}_3$ (C5 L40-47)

Regarding Claims 11, 14, 15, 17-18, and 21:

Lange '163 discloses the limitations set forth above. Lange '163 discloses the composition may be used as a fuel additive and in fuel detergents. (C6 L15-20) (C8

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L38-40) and discloses a fuel composition comprising the reaction product and a majority of hydrocarbon fuel (C9 L22-25).

Lange '163 discloses the composition may be used in the form of an additive package, such as a detergent in hydrocarbon fuel, in a carrier fluid and solvent (i.e. diluent) and a lubricating oil (i.e. as a lubricant) (C9 L50-62).

Lange '163 discloses it is use in an amount of from 600-1000ppm leaving the remainder as lubricating oil, or other carrier fluid. (C9 L49-54)

Lange '163 discloses the composition may be used as a concentrate and blended into a fuel compatible hydrocarbon solvent. (C10 L33-36).

Lange '163 further discloses the composition may contain other known additives depending on whether it is to be used as a diesel fuel or as a gasoline fuel. (C10 L36-50 the fuel is capable of being used as a turbine fuel).

Regarding Claims 19-20 and 22:

Lange '163 discloses the limitations set forth above. Claims 19-20 and claim 22 fail to set forth the language of the method steps and merely recites a method of using (i.e. as an additive) The examiner maintains that the fuel is capable of being used as a turbine fuel and when presented as an additive is capable of being used for turbine fuels and as set forth above is a fuel additive for preparing fuel detergents whether used as the composition before or after the Mannich condensation reaction.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lange et al. (WO 02/26839) citing to reference as published (US 6,875,897).

Regarding Claim 6:

Lange discloses the limitations set forth above. . Lange also discloses the BF₃ and complexes are reacted at from 15 to 40° C Lange discloses the order of the addition of the reaction components is unimportant; as such, the BF₃ and the alkylhydroxyaromatic may be added at the same time at the same temperature. (C4 L65-68) (overlapping the limitation of at most 20 ° C See MPEP 2144.05(I): "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).")

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Lange et al. (WO 02/26840) citing (US 6,914,163) referred to hereafter as Lange '163.

Regarding Claim 6:

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Lange '163 discloses the limitations set forth above. Lange '163 also discloses the BF_3 and complexes are reacted at from 15 to 40 °C. Lange '163 further discloses the order of the addition of the reaction components is unimportant; as such, the BF_3 and the alkylhydroxyaromatic may be added at the same time at the same temperature.

14. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Lange et al. (WO 02/26840) citing (US 6,914,163) referred to hereafter as Lange '163 as applied to claims 1-2 above further in view of Davis (US 4,663,063)

Regarding Claim 3:

Lange '163 discloses the limitations set forth above. Lange '163 discloses the limitations set forth above. Lange '163 also discloses the hydroxyaromatic compound of the BF_3 complex is a BF_3 with a phenol. (C5 L27-41). Lange '163 discloses the BF_3 complex may be with a cresol or other phenol and a co catalyst such as an ether of (i- C_3H_7) $_2\text{O}$ or t- $\text{C}_4\text{H}_9\text{-O-CH}_3$ (C5 L35-45).

Lange does not expressly disclose the phenol to be a trialkyl phenol or a 4 halophenol.

Davis discloses an alkyl phenol which is a trialkyl phenol having carbon atoms at the ortho and para positions for R' and R'' and having a second R'' group which may fill one of the remaining meta positions meeting the limitations for 2,4,6 trialkylphenol (Davis C12 L52-C13 L5)

It would have been obvious to a person having ordinary skill in the art at the time of invention to use the trialkylphenol of Davis as the BF_3 complex phenol of Lange '163 as Lange '163 contemplate the use of a phenol including a cresol which has an alkyl

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group. Using the trialkyl phenol of Davis would amount to nothing more than substitution of a known compound in a known environment to achieve an entirely expected result.

15. Claims 8, and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Lange et al. (WO 02/26840) citing (US 6,914,163) referred to hereafter as Lange '163 as applied to claims 1-2 above and further in view of Norell (US 3,878,255).

Regarding Claims 8 and 12-13:

Lange '163 discloses the limitations set forth above. Lange '163 also discloses the aromatic hydroxy compound with R¹ and R² of C₁-C₈ alkyl groups. (C4 L25-45). The C₁-C₈ alkyl groups may be of a finite number of identified predictable combinations which would include a tertiary or quaternary carbon as evidenced by Norell.

Norrell discloses a dialkyl phenol possessing tertiary carbons (C2 L1-27). Norrell discloses that such dialkyl phenols possessing tertiary carbons (C4 L45-59) are suitable for use as antioxidants in gasoline and lubricating oils as well as in the preparation of phenol aldehyde resins. (C8 L10-20)

It would have been obvious to a person having ordinary skill in the art at the time of invention to use the dialkyl phenol of Norrell as the dialkyl phenol in the reaction of Lange '163 as they are suitable for preparation of other phenol aldehyde materials and for use in gasoline and lubricating oils.

Lange '163 discloses the composition (which is 100% the claimed composition prior to being placed in solvent or fuel thus meeting the limitation of claim 13).

Claims 11-13 are product by process claims: It is noted that limitations of how the product is made are not given patentable weight in the product claims. Even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself and does not depend on its method of production. In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in Thorpe, 777 F.2d at 697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969)

16. Claims 3, 8, and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Lange et al. (WO 02/26840) citing (US 6,914,163) referred to hereafter as Lange '163 as applied to claims 1-2 above and further in view of Baker et al. (US 5,620,949).

Regarding Claim 3:

Lange '163 discloses the limitations set forth above. Lange '163 also discloses the hydroxyaromatic compound of the BF_3 complex is a BF_3 with a phenol. (C5 L27-41). Lange '163 discloses the BF_3 complex may be with a cresol or other phenol and a co catalyst such as an ether of $(i\text{-C}_3\text{H}_7)_2\text{O}$ or $t\text{-C}_4\text{H}_9\text{-O-CH}_3$ (C5 L35-45).

Lange does not expressly disclose the phenol to be a trialkyl phenol or a 4 halophenol.

Baker et al. discloses a hydroxyaromatic compound which may be used in a reaction such as with an aldehyde for condensation (i.e. Mannich type reaction) and suitable for use as an additive for lubricants as well as an intermediate for further

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reaction with amines, alcohols, etc. (Abstract). The hydrocarbyl substituted hydroxyaromatic compound produced include 4-t-butyl phenol and 2,6 di-t-butyl phenol (meeting the limitation for a tertiary or quaternary carbon). (C7 L57-62).

It would have been obvious to a person having ordinary skill in the art at the time of invention to use the alkylphenol of Baker as the alkylhydroxyaromatic of Lange '163 as it is suitable for further reaction and to make products useful in lubricating oils. Further, Lange '163 contemplate the use of a phenol including a cresol which has an alkyl group. Using the trialkyl phenol of Baker would amount to nothing more than substitution of a known compound in a known environment to achieve an entirely expected result.

Regarding Claims 8 and 12-13

Lange '163 discloses the limitations set forth above. Lange '163 discloses the aromatic hydroxy compound with R^1 and R^2 of C_1 - C_8 alkyl groups. (C4 L25-45). The C_1 - C_8 alkyl groups may be of a finite number of identified predictable combinations which would include a tertiary or quaternary carbon.

Baker et al. discloses a hydroxyaromatic compound which may be used in a reaction such as with an aldehyde for condensation (i.e. Mannich type reaction) and suitable for use as an additive for lubricants as well as an intermediate for further reaction with amines, alcohols, etc. (Abstract). The hydrocarbyl substituted hydroxyaromatic compound produced include 4-t-butyl phenol and 2,6 di-t-butyl phenol (meeting the limitation for a tertiary or quaternary carbon). (C7 L57-62).

It would have been obvious to a person having ordinary skill in the art at the time of invention to use the alkylphenol of Baker as the alkylhydroxyaromatic of Lange '163 as it is suitable for further reaction and to make products useful in lubricating oils.

17. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Lange et al. (WO 02/26840) citing (US 6,914,163) referred to hereafter as Lange '163 as applied to claims 1-2 above further in view of Samson (US 4,605,808)

Regarding Claim 4:

Lange '163 discloses the limitations set forth above. Lange '163 discloses the BF_3 complex with a hydroxyaromatic compound. As such, BF_3 with an aliphatic alcohol is not required.

Samson discloses using BF_3 catalysts for alkylation, such as polyisobutene alkylation, is known to be accomplished with aliphatic alcohol of 1-4 carbon atoms such as methanol where the molar ratio of boron trifluoride to the alcohol is from 0.5:1 to 5:1 overlapping the claimed range of alcohol to BF_3 of at most 1.9:1 (C2 L48-60 and Abstract). See MPEP 2144.05(I): "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976)."

Samson discloses that using the BF_3 with alcohol such as methanol as a catalyst facilitates commercial operation and improves control of the operations. (Abstract).

It would have been obvious to a person having ordinary skill in the art at the time of invention to use the BF_3 complex with methanol in the ratios of Samson as the BF_3

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complex in Lange '163 in order to facilitate commercial operation and improve control of the operations.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAMELA WEISS whose telephone number is (571)270-7057. The examiner can normally be reached on Mon.-Thur. 7:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/pw/

/Glenn A Caldarola/
Acting SPE of Art Unit 1797